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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,619	09/29/2003	Nobuyuki Kuwabara	01272.020637.	6253

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EXAMINER	
VO, ANH T N	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 05/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/671,619	KUWABARA ET AL.
	Examiner	Art Unit
	Anh T.N. Vo	2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22 and 27-40* is/are rejected.

7)☒ Claim(s) *23-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/30/04 & 4/25/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement is made of the receipt of Preliminary Amendment filed 25 April 2005.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The references cited on PTO 1449 have been considered.

Claim Objection

Claims 2 and 16 are objected to because of the following informalitie:

* In claim 2, the word 'it" should be deleted, as the term "it" is indefinite.
* In claim 15, line 7, "'a" at first occurrence should be changed to --said--.
Appropriate correction is required.

Double patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims Claims 1-2, 10, 14-18, 27, 35 and 38-40 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of US Patent number 6,773,099. Although the conflicting claims are not identical, they are not patentably distinct from each other because they claim an ink supply system comprising:
- a containing portion;
- a liquid supply portion;
- an air opening;
- a mechanism having a movable member and an urging means; and
- liquid ports.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

CLAIM REJECTIONS

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1, 3-8, 10-11, 14-15, 19-22, 27, 30, 35 and 37 are rejected under 35 USC 102 (b) as being anticipated by DeFilippis (US Pat. 5,905,518).

DeFilippis disclose in Figures 1-4 an inkjet cartridge for supplying ink to a printhead comprising:

- a first ink storage area to store ink (10) (Figures 1A-1B and 3);
- a second ink storage area (66) connected to the first ink storage area (10) through a connecting means to introduce the ink from the first ink storage area for supply to a print head (20);
- wherein the connecting means disconnectably connects the second ink storage area (66) to the first ink storage area and, when the two ink storage areas are connected, forms a plurality of communication paths (40, 44) communicating the two ink storage areas with each other (Figure 4);
- wherein the second ink storage area (66) , excluding the plurality of communication paths (40, 44) and a connecting portion with the print head (20), virtually forms a hermetically closed space (Figure 3);
- wherein, when the ink is refilled into the second ink storage area (66) from the first ink storage area (10) through at least one of the plurality of communication paths (40, 44), a gas present in the second ink storage area (66) can be transferred to the first ink storage area (10) through at least one other communication path (14);
- wherein the first ink storage area (10) has a space (62) to take in the gas transferred from the second ink storage area (66) (Figures 2 and 4);

- wherein the plurality of communication paths (12, 14) have their openings on the first ink storage area side situated higher in a gravity direction than their openings (stand pipes that contain needles 40 and 44) on the second ink storage area side and also have an opening of the at least one communication path on the second ink storage area side situated higher in the gravity direction than an opening of the at least one other communication path on the second ink storage area side (Figure 2);
- wherein, based on a relationship between a pressure that the ink in the first ink storage area (10) applies to the second ink storage area (66), which is a virtually hermetically closed space, and a force of an ink meniscus formed in the at least one of the plurality of communication paths, a gas present in the second ink storage area (66) is transferred into the first ink storage area through the at least one communication path (44) while at the same time the ink is supplied from the first ink storage area (10) into the second ink storage area (60) through the at least one other communication path (12) (Figures 2-4);
- wherein the opening, on the second ink storage area side, of the at least one of the plurality of communication paths is formed in contact with an inner wall of a container forming the second ink storage area (Figure 4).
- wherein the opening, on the second ink storage area side, of the at least one of the plurality of communication paths is formed with a groove (stand pipes that contain needles 40 and 44) that extends along the communication path toward the inside of the second ink storage area (Figure 4).
- wherein the opening, on the second ink storage area side, of the at least one of the plurality of communication paths is in contact at all times with the ink in the second ink storage area.
- wherein the plurality of communication paths have different contact angles between the inner wall thereof and the ink.
- a means which, when the connecting means disconnects a connecting portion on the second ink storage area side from a connecting portion on the first ink storage area side, hermetically closes (closing by seals 56) the connecting portion on the second ink storage area side (Figure 2);
- wherein the second ink storage area (66) has a printing portion (20) that uses the ink, a second ink container storing the ink and the connecting means (Figure 2);
- wherein at least a part of the first ink storage area is situated higher in the gravity direction than

the connecting means (Figure 2);
- wherein the first ink storage area has a first ink container to store the ink, a negative pressure generation means (a regulator mechanism) to generate a negative pressure in the first ink container, the connecting means and an ink supply portion to extract the ink (column 2, lines 9-15);
- wherein the first ink container can be replaced after the ink therein is consumed (Figure 1A-1B);
- wherein the first ink container (10) is provided with a gas accommodating chamber (62) which is installed higher than the connecting means and accommodates a gas transferred from the second ink storage area (Figure 2);
- wherein the gas accommodating chamber (air bag) is deformable (Figure 2); and
- wherein the gas accommodating chamber (62) has a maximum internal volume which is larger than an internal volume of an ink path (12) , the ink path introducing the ink from the first ink container (10) to the connecting means (40) (Figure 2).

Claims 1, 3-8, 10-14, 19 and 27-36 are rejected under 35 USC 102 (e) as being anticipated by Oda et al. (US Pat. 6,520,630).

Oda et al. disclose in Figures 1-12 an inkjet recording apparatus comprising:
- a first ink storage area to store ink (22) (Figure 1);
- a second ink storage area (20) connected to the first ink storage area (22) through a connecting means (50, 52) to introduce the ink from the first ink storage area for supply to a print head (18) (Figure 3);
- wherein the connecting means disconnectably connects the second ink storage area (20) to the first ink storage area (22) and, when the two ink storage areas are connected, forms a plurality of communication paths (56A, 56B) communicating the two ink storage areas with each other (Figure 4);
- wherein the second ink storage area (20) , excluding the plurality of communication paths (56A, 56B) and a connecting portion with the print head (18), virtually forms a hermetically closed space (Figures 3-4);

- wherein, when the ink is refilled into the second ink storage area (20) from the first ink storage area (22) through at least one of the plurality of communication paths (56A, 56B), a gas present in the second ink storage area (20) can be transferred to the first ink storage area (22) through at least one other communication path (56A) (Figure 1);
- wherein the first ink storage area (22) has a space to take in the gas transferred from the second ink storage area (20) (Figure 1);
- wherein the plurality of communication paths have their openings on the first ink storage area side situated higher in a gravity direction than their openings on the second ink storage area side and also have an opening of the at least one communication path on the second ink storage area side situated higher in the gravity direction than an opening of the at least one other communication path on the second ink storage area side (Figure 4);
- wherein, based on a relationship between a pressure that the ink in the first ink storage area (22) applies to the second ink storage area (20), which is a virtually hermetically closed space, and a force of an ink meniscus formed in the at least one of the plurality of communication paths, a gas present in the second ink storage area (20) is transferred into the first ink storage area (22) through the at least one communication path (56A) while at the same time the ink is supplied from the first ink storage area (22) into the second ink storage area (20) through the at least one other communication path (56B) (Figures 1);
- wherein the opening (56A, 56B), on the second ink storage area side (20), of the at least one of the plurality of communication paths (56A, 56B) is formed in contact with an inner wall of a container (32) forming the second ink storage area (Figure 1).
- wherein the opening, on the second ink storage area side, of the at least one of the plurality of communication paths is formed with a groove (50, 52) that extends along the communication path toward the inside of the second ink storage area (Figure 1).
- wherein the opening, on the second ink storage area side, of the at least one (56B) of the plurality of communication paths (56A, 56B) is in contact at all times with the ink in the second ink storage area (Figure 1);
- wherein the plurality of communication paths have different contact angles between the inner wall thereof and the ink;
- a means (62A, 62B) which, when the connecting means disconnects a connecting portion on

the second ink storage area side from a connecting portion on the first ink storage area side, hermetically closes the connecting portion on the second ink storage area side (Figure 4);
- wherein the second ink storage area (20) has a printing portion (18) that uses the ink, a second ink container storing the ink and the connecting means (Figure 1-2);
- wherein the second ink container (ink bag 100) is formed deformable (Figure 12);
- wherein the second ink container (100) has a negative pressure generation means (102) to generate a negative pressure therein (Figure 12);
- wherein at least a part of the first ink storage area (22) is situated higher in the gravity direction than the connecting means (20) (Figure 2);
- wherein the first ink container can be replaced after the ink therein is consumed (Figures 3-4);
- wherein the ink container (20) is held on a movable carriage (16) on which the print head (18) is mounted (Figure 2);
- wherein the ink-refilling portion (22) is installed outside the movable carriage (16) (Figure 10);
- wherein at least apart of the plurality of communication paths (56A, 56B) is formed either in the ink container (20) (Figure 4);
- wherein the plurality of communication paths have their openings (ports that locate elements 82A and 82B) on the ink refilling portion side situated higher in a gravity direction than their openings on the ink container side and also have an opening of the at least one communication path on the ink container side situated higher in the gravity direction than an opening of the at least one other communication path on the ink container side (Figure 4); and
- a flexible sheet (100) to form at least a part of an inner space of the ink container (20) and a spring member (102) to urge the flexible sheet (100) outwardly (Figure 12).

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 9, 18 and 40 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Oda et al. (US Pat. 6,520,630) in view of Oda et al. (US Pat. 6,726,313).

Oda et al. (6,520,630) disclose the basic features of the claimed invention were stated above but do not disclose the first ink storage area has a means to introduce an atmosphere into the first ink storage area, without passing it through the second ink storage area and the plurality of communication paths have different inner diameters.

Oda et al. (6,726,313) discloses in Figure 1 an ink supply system comprising a means (78) to introduce an atmosphere into the first ink storage area (24), without passing it through the second ink storage area (20) (column 7, lines 24-31).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Oda et al. (6,726,313) in the Oda et al. (6,520,630) ink supply system for the purpose of maintaining a negative pressure during performing a supply of ink.

Oda et al. disclose the claimed invention except for "the plurality of communication paths have different inner diameters". It would have been obvious to one having ordinary skill in the art at the time the invention was made to select communication paths having different inner diameters for the purpose of maintaining a constant negative pressure. Since it is a mechanical design expedient for an engineer depending upon a particular environment and the applications in which the ink jet cartridge is to be used

Citation of Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art references (US Pat. 4,967,207; US Pat. 4,968,998; US Pat. 6,022,102; US Pat. 6,234,615; US Pat. 6,505,923; US Pat. 6,540,321; US Pat. 6,722,761; Us Pat. 6,802,601)

cited in the PTO 892 form show an ink supply system that is deemed to be relevant to the present invention. These references should be reviewed.

Allowable Subject Matter

Claims 23-26 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims. These claims would be allowable because none of the prior art references of record discloses an ink supply system comprising a means to reduce an internal volume of a gas accommodating chamber in the combination as claimed.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo. whose telephone number is (703) 305-8194. The examiner can normally be reached on Monday to Friday from 8:00 A.M.to 4:00 P.M. The fax number of this Group 2861 is (703) 305-3431 or 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

ANH T.N. VO
PRIMARY EXAMINER
May 5, 2005